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Amendment dated Jan. 14, 2005
Reply to Office action dated Oct. 19, 2004

Remarks

I. Status of claims

Claims 15-34 were pending.

Claim 35 has been added.

II. Claim rejections under 35 U.S.C. § 102

The Examiner has rejected claims 15-17, 20, 21, 23-25, and 31-34 under 35 U.S.C. § 102(b) over Tow (U.S. 5,315,098).

A. Independent claim 15

Claim 15 recites in part "partitioning at least a portion of the M×N pixel image into a plurality of K×K image matrices" and "converting at least one of the K×K image matrices to a respective K×K barcode matrix."

The Examiner has asserted that "Tow is a similar halftone data-embedding system to Curry, wherein (see especially figure 1 and figures 3a-3c) an image is divided into smaller K×K matrices; here k=5, whose pattern depends on the data stream being encoded." In FIG. 1, however, Tow clearly shows that the halftone generator 52 receives "Grayscale Samples" of an input image, not K×K pixel partitions of the input image. FIGS. 3A-3C show different rotational positions of a 5×5 halftone cell 61 (see, e.g., col. 3, lines 1-8); these figures do not show K×K pixel partitions of the input image.

Evidently, the Examiner has misconstrued Tow's disclosure. Contrary to the Examiner's assertion, Tow does not divide an input image into K×K matrices. Instead, Tow's halftoning system operates on "spatially periodic grayscale input image sample values" (col. 3, line 31). That is, Tow's halftoning system operates on the values of pixels that are located at spatially periodic positions across the input image. In accordance with Tow's halftoning approach, each grayscale input image sample value is transformed into a respective halftone dot pattern that has an average reflectance corresponding to the grayscale input image sample value (see col. 3, lines 25-47). The halftone dot patterns are tiled into a

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two-dimensional array of halftone cells that approximates the grayscale appearance of the input image from which the grayscale samples are obtained.

Therefore, contrary to the Examiner's assertion, Tow's halftoning system does not partition at least a portion of the M×N pixel image into a plurality of K×K image matrices and convert at least one of the K×K image matrices to a respective K×K barcode matrix.

For at least this reason, the Examiner's rejection of independent claim 15 under 35 U.S.C. § 102(b) over Tow should be withdrawn.

B.   Claims 16, 17, 23-25, and 31-34

Each of claims 16, 17, 23-25, and 31-34 incorporates the features of independent claim 15 and therefore is patentable over Tow for at least the same reasons explained above.

C.   Independent claim 20

For the purpose of the following discussion, the Examiner is reminded that "for anticipation under 35 U.S.C. 102, the reference must teach every aspect of the claimed invention either explicitly or impliedly" (MPEP § 706.02(a)).

The Examiner has asserted that:

> Re claim 20: Tow makes machine readability evident in the title and throughout the document. It is clear that throughout the document the decoding involves partition into the individual halftone images (i.., the sub-images) and comparing it with a set of possible halftone images to recreate the encoded message: This is simply the reverse of the encoding process shown in figures 1 and 3.

To summarize, the Examiner asserts that "machine readability is evident," pronounces that in Tow's approach "decoding involves partition into the individual halftone images (i.., the sub-images) and comparing it with a set of possible halftone images to recreate the encoded message," and concludes that these fabricated decoding steps are "simply the reverse of the encoding process shown in figures 1 and 3."

With this rejection, however, the Examiner clearly has failed to meet his obligation to show how Tow teaches every feature recited in claim 20. In this regard, the Examiner is obligated to point to some specific teaching in Tow that anticipates all of the features of claim

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20. Instead, the Examiner has attempted to dodge the issue of what exactly Tow discloses regarding decoding by lacing his explanation with words such as "evident" and "clear". But the inescapable fact is that Tow fails to teach or suggest anything whatsoever about the way in which the embedded machine-readable digital data is extracted from the halftone images produced by his halftoning method. There is simply nothing in Tow's disclosure that supports the Examiner's assertion that "throughout the document the decoding involves partition into the individual halftone images (i.., the sub-images) and comparing it with a set of possible halftone images to recreate the encoded message." Indeed, the decoding process is not described in any part of Tow's disclosure. In addition, the decoding steps that are fabricated by the Examiner are not "simply the reverse of the encoding process shown in figures 1 and 3."

It appears that the Examiner improperly has engaged in hindsight reconstruction of the claimed invention, using applicants' disclosure as a blueprint for piecing together the cited prior art to defeat patentability. Without a proper explanation showing how Tow teaches each of the features of independent claim 20, the Examiner has failed to establish a proper *prima facie* case of anticipation and, therefore, the rejection of claim 20 should be withdrawn.

D Claim 21

Claim 21 incorporates the features of independent claim 20 and therefore is patentable over Tow for at least the same reasons explained above.

III. Claim rejections under 35 U.S.C. § 103(a)

A. Claim 19

The Examiner has rejected claim 19 under 35 U.S.C. § 103(a) over Tow in view of Curry (U.S. 5,710,636).

Claim 19 incorporates the features of independent claim 15. Curry does not make-up for the failure of Tow to teach or suggest "partitioning at least a portion of the M×N pixel image into a plurality of K×K image matrices" and "converting at least one of the K×K image

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matrices to a respective K×K barcode matrix," as recited in claim 15. Indeed, Curry's halftoning process and Tow's halftoning process both operate on grayscale image data that corresponds to "spatially periodic grayscale input image sample values" (see col. 3, line 31 of Tow, and col. 3, lines 65-66 of Curry). Neither Tow nor Curry even hints at "partitioning at least a portion of the M×N pixel image into a plurality of K×K image matrices" and "converting at least one of the K×K image matrices to a respective K×K barcode matrix."

For at least these reasons, the Examiner's rejection of claim 19 under 35 U.S.C. § 103(a) over Tow in view of Curry should be withdrawn.

B.   Claims 18, 22, 27, 28, and 29

The Examiner has rejected claims 18, 22, and 27-29 under 35 U.S.C. § 103(a) over Tow in view of Rhoads (U.S. 6,345,104).

Each of claims 18 and 27-29 incorporates the features of independent claim 15. Rhoads does not make-up for the failure of Tow to teach or suggest "partitioning at least a portion of the M×N pixel image into a plurality of K×K image matrices" and "converting at least one of the K×K image matrices to a respective K×K barcode matrix," as recited in claim 15. Therefore, claims 18 and 27-29 are patentable over Tow and Rhoads for at least the same reasons explained above.

Claim 22 incorporates the features of independent claim 20. Rhoads does not make-up for the failure of Tow to teach or suggest the features of independent claim 20 discussed above. Therefore, claim 22 is patentable over Tow and Rhoads for at least the same reasons explained above.

C.   Claims 26 and 30

The Examiner has rejected claims 26 and 30, which depend from independent claim 15, under 35 U.S.C. § 103(a) over Tow in view of "applicant's own prior admission." In particular, the Examiner has cited a statement in the Detailed Description section of the application in support of the proposition that "such things as 'checksums' have long been used to ensure accurate data encoding and decoding." This proposition, however, does not make-up for the failure of Tow to teach or suggest "partitioning at least a portion of the M×N

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pixel image into a plurality of K×K image matrices" and "converting at least one of the K×K image matrices to a respective K×K barcode matrix," as recited in claim 15. Therefore, claims 26 and 30 are patentable over Tow and "applicant's own prior admission" for at least the same reasons explained above in connection with independent claim 15.

IV.   Conclusion

For the reasons explained above, all of the pending claims are now in condition for allowance and should be allowed.

Charge any excess fees or apply any credits to Deposit Account No. 08-2025.

Respectfully submitted,

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